Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (Currently amended) A magnetic resonance imaging apparatus comprising magnetic field generating means for producing nuclear magnetic resonance in an object to be examined, detecting means for detecting nuclear magnetic resonance signals emitted from the object, control means for controlling the magnetic field generating means and detecting means, computing means for visualizing morphology or functions of the examined object using the nuclear magnetic resonance signals detected by the detecting means, and display means for displaying the computed results as images,

wherein the control means operates so that a step of acquiring a plurality of nuclear magnetic resonance signals as image-forming data at one excitation is performed continuously and, between ~~image-data-acquiring~~ image-forming-data-acquiring steps, a step of acquiring correction data plural times at a desired interval is performed,

and the computing means comprises means for producing a correction data group, which includes temporal variations in the interval, using a plurality of the correction data acquired at a desired interval and means for correcting the image-forming data using correction data from among the correction data group, which corresponds to acquisition time of the image-forming data.

2 (Withdrawn) A magnetic resonance imaging method comprises a step A of acquiring image-forming data consisting of a plurality of nuclear magnetic resonance signals at one excitation, a step B of repeating the step A while changing a slice-encoding gradient magnetic field and/or phase-encoding gradient magnetic field, a step C of repeatedly acquiring correction data at a desired interval during repetition of the step A, a step D of

producing correction data corresponding to acquisition time of image-forming data acquired between acquisitions of one correction data and next correction data using at least two correction data, and a step E of performing phase-correction of the image-forming data using correction data corresponding to acquisition time of the image-forming data from among the correction data produced in the step D.

3. (Withdrawn) The magnetic resonance imaging method of claim 2, wherein plural image-forming data are acquired between acquisitions of one correction data and the next correction data, and the correction data produced in the step D is a group of plural correction data corresponding to the plural image-forming data.

4. (Withdrawn) The magnetic resonance imaging method of claim 2, wherein the step B is performed with a significantly shorter repetition time TR than a longitudinal relaxation time of the examined object.

5. (Withdrawn) The magnetic resonance imaging method of any one of claims 2-4, wherein the step D produces the correction data using a raw correction data acquired in the step C.

6. (Withdrawn) The magnetic resonance imaging method of any one of claims 2-4, wherein the step D produces the correction data after a raw correction data acquired in the step C is subjected to a Fourier transform in the readout direction.

7. (Withdrawn) A magnetic resonance imaging apparatus comprising

magnetic field generating means for producing nuclear magnetic resonance in an object to be examined, detecting means for detecting nuclear magnetic resonance signals emitted from the object, control means for controlling the magnetic field generating means and detecting means, computing means for visualizing morphology or functions of the examined object using the nuclear magnetic resonance signals detected by the detecting means, and display means for displaying the computed results as images,

wherein the control means performs pre-scan for acquiring data for correcting variations of eddy currents and/or inhomogeneities in the static magnetic field according to a time constant prior to a main measurement scan, and the computing means corrects data obtained by the main measurement scan based on the data obtained by the pre-scan.

8. (Withdrawn) A magnetic resonance imaging apparatus of claim 7, wherein the control means performs the pre-scan so that the data is acquired without a phase-encoding gradient magnetic field of the main measurement scan or with a readout gradient magnetic field having a reversed polarity, and then computing means produces phase data for each acquisition time of the main scan data using the pre-scan data and corrects the main scan data using the phase data.

9. (Previously amended) A magnetic resonance imaging apparatus comprising magnetic field generating means for producing nuclear magnetic resonance in an object to be examined, detecting means for detecting nuclear magnetic resonance signals emitted from the object, control means for controlling the magnetic field generating means and detecting

means, computing means for visualizing morphology or functions of the examined object using the nuclear magnetic resonance signals detected by the detecting means, and display for displaying the computed results as images,

wherein the control means acquires a plurality of correction data at a predetermined interval and acquires image-forming data continuously between acquisitions of the correction data, and the computing means produces a correction data group, which corresponds to acquisition time of the image-forming data, using the correction data and corrects the image-forming data using the correction data group for each corresponding acquisition time.

10. (Original) The magnetic resonance imaging apparatus of claim 9, wherein the computing means reverses data arrangement corresponding to the polarity of gradient magnetic field pulses after acquisition of the image-forming data.

11. (Original) The magnetic resonance imaging apparatus of claim 9, wherein a plurality of image-forming data acquired continuously between acquisitions of the correction data by the control means corresponds to one image.

12. (Original) The magnetic resonance imaging apparatus of claim 11, wherein a plurality of image-forming data acquired continuously between acquisitions of the correction data by the control means is for an identical slice and two-dimensional images of the slice are displayed successively on the display means.

13. (Original) The magnetic resonance imaging apparatus of claim 11, wherein a

plurality of image-forming data acquired continuously between acquisitions of the correction data by the control means is for different slices, and two-dimensional images of the plural slices are displayed simultaneously on the display means.

14 (Original) The magnetic resonance imaging apparatus of claim 11, wherein a plurality of image-forming data acquired continuously between acquisitions of the correction data by the control means is for adjacent slices, and the computing means produces a three-dimensional image using two-dimensional image data and displays the tree-dimensional image on the display means.

15. (Previously Amended) A magnetic resonance imaging method of detecting nuclear magnetic resonance signals emitted from an object to be examined, imaging morphology or functions of the object using the nuclear magnetic resonance signals and displaying the computed results as images, comprising the steps of;

acquiring correction data at a predetermined interval,

acquiring image-forming data continuously between acquisitions of the correction data,

producing a correction data group corresponding to acquisition time of the image-forming data using the correction data, and

correcting the image-forming data using the correcting data group for each corresponding acquisition time.

16 (Withdrawn) A magnetic resonance imaging method comprising;

a step of continuously acquiring image-forming data consisting of a plurality of nuclear

magnetic resonance signals while changing a slice-encoding gradient magnetic field or a phase-encoding gradient magnetic field,

a step of repeatedly acquiring correction data at a desired interval during acquisition of the image-forming data,

a step of producing a correction data group including temporal variations between acquisitions of one correction scan data and the next correction scan data using at least two correction data, and

a step of performing phase correction of the image-forming data using correction data corresponding to acquisition time of the image-forming data from among- the correction data group.

17. (Original) The magnetic resonance imaging apparatus of claim 1, wherein the computing means produces a correction data group by interpolation using adjacent correction data.

18. (Previously Presented) The magnetic resonance imaging apparatus of claim 17, wherein the interpolation is a linear interpolation.

19. (Previously Presented) The magnetic resonance imaging apparatus of claim 17, wherein the computing means produces correction data corresponding to the acquisition time of the image-forming data as the correction data group and corrects the image-forming data by the correction data produced corresponding to the acquisition time of the image-forming data.

20. (Previously Presented) The magnetic resonance imaging apparatus of claim 1, wherein the computing means produces the correction data group using the correction data subjected to one-dimensional Fourier transform in the readout direction and corrects the image-forming data subjected to one-dimensional Fourier transform in the readout direction by the correction data group corresponding to the acquisition time.

21. (Previously Presented) The magnetic resonance imaging apparatus of claim 20, wherein the computing means produces the correction data group by interpolation using the correction data subjected to one-dimensional Fourier transform in the readout direction.

22. (Previously Presented) The magnetic resonance imaging apparatus of claim 21, wherein the interpolation is a linear interpolation.

23. (Previously Presented) The magnetic resonance imaging apparatus of claim 21, wherein the computing means produces correction data corresponding to the acquisition time of the image-forming data as the correction data group and corrects the image-forming data by the correction data produced corresponding to the acquisition time of the image-forming data.

24. (Previously Presented) The magnetic resonance imaging apparatus of claim 9, wherein the computing means produces a correction data group by interpolation using adjacent correction data.

25. (Previously Presented) The magnetic resonance imaging apparatus of claim 24, wherein the interpolation is a linear interpolation.

26. (Previously Presented) The magnetic resonance imaging apparatus of claim 24, wherein the computing means produces correction data corresponding to the acquisition time of the image-forming data as the correction data group and corrects the image-forming data by the correction data produced corresponding to the acquisition time of the image-forming data.

27. (Previously Presented) The magnetic resonance imaging apparatus of claim 9, wherein the computing means produces the correction data group using the correction data subjected to one-dimensional Fourier transform in the readout direction and corrects the image-forming data subjected to one-dimensional Fourier transform in the readout direction by the correction data group corresponding to the acquisition time.

28. (Previously Presented) The magnetic resonance imaging apparatus of claim 27, wherein the computing means produces the correction data group by interpolation using the correction data subjected to one-dimensional Fourier transform in the readout direction.

29. (Previously Presented) The magnetic resonance imaging apparatus of claim 28, wherein the interpolation is a linear interpolation.

30. (Previously Presented) The magnetic resonance imaging apparatus of claim 28, wherein the computing means produces correction data corresponding to the acquisition time of the image-forming data as the correction data group and corrects the image-forming data by the correction data produced corresponding to the acquisition time of the image-forming data.